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A Review of the Subfamily Nolinae (Lepidoptera, Noctuidae) in Korea (I) : Genus *Nola* Leech

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Abstract Twelve species of the genus *Nola*, including a new species, *Nola longicosta* sp. nov. are recognized from Korea. Among them, six species, *Nola cristatula* (Hübner), *N. yoshinensis* (Wileman & West), *N. japonibia* (Strand), *N. nami* (Inoue), *N. ebatoi* (Inoue), and *N. okanoi* (Inoue), are reported for the first time from Korea. Genital characteristics of the species are briefly described with illustrations, and all available collecting data are given.

Key words Lepidoptera, Noctuidae, Nolinae, *Nola*, systematics, Korea

INTRODUCTION

Nolinae are small to medium sized moths, with wingspan 12 mm to 28 mm. They can be characterized by the presence of 3 to 4 raised scale-tufts on the forewing. More than 500 species of the Nolinae are known throughout the world, mostly in the Oriental Region. The taxonomic review on the Nolinae of the world was first made by Hampson (1900, 1914), with descriptions of numerous new species and genera. The first record of the subfamily in Korea was *Evonima mandschuriana* (Oberthür) by Fixsen (1887), and *Nola srigulosa* Staudinger [= *Rhynchopalpus fumosa* (Butler)] described from Russian Far East (Amur) and Korea. Leech (1888) reported *Nola centonalis* Hübner (= *N. aerugula* Hübner) and *Nola albulalis* Leech [= *Rhynchopalpus albula* (Denis & Schiffermüller)] from Korea, and Seitz (1912) added *Celama candida* Hampson (= *Nola taeniata* Snellen) to the Korean fauna. Inoue (1976) reported *Nola innocua* Butler, and he (1982) added further three species, *Nola confusalis* (Herrich-Schäffer), *N. trilinea* Marumo, and *Rhynchopalpus mediofascia* (Inoue). Consequently, nine species belonging to three genera, *Nola*, *Rhynchopalpus* and *Evonima* of the subfamily have been known to date in Korea.

In the present paper, twelve species of the genus *Nola* Leech are recognized; one species is described as new to science, and six species are reported for the first time from Korea.

Materials examined are preserved in the Center for Insect Systematics, Kangweon National University, Chuncheon, Korea. Abbreviations used for provinces are as follows: GG- Gyeonggi; GW- Gangwon;

CB- Chungbug; CN- Chungnam; JB- Jeonbug; JN- Jeonnam; GB- Gyeongbug; JJ- Jeju.

Genus *Nola* Leech, 1815

Nola Leech, 1815. In Brewster, Edinburgh Encycl. 9: 135. Type species: *Noctura palliola* Denis & Schiffermüller.

Roeselia Hübner, 1825. Verz bekannter Schmett.: 397. Type species: *Pyralis togatulalis* Hübner.

Celama Walker, 1865. List Specimens lepid. Insects coll. Br. Mus. 32: 500. Type species: *Celama liparisalis* Walker.

They have considerable variations in the venation, especially R veins of forewing; R_2 and R_3 absent in the most of known species, but present in *N. trilinea*. M_3 of hindwing absent. Male genitalia; valva deeply cleft into two parts; uncus small or atrophied; anal tube thin and quite long; aedeagus short and broad, but slender in *N. trilinea*.

Key to Korean species of the genus *Nola* Leech

1. Forewing with R_2 absent. Antenna in male fasciculate. Uncus of male genitalia atrophied 2
– Forewing with vein R_2 present. Antenna in male bipectinate. Uncus developed ..... *trilinea* Marumo
2. Forewing with R_1 and R_4 connate 3
– Forewing with R_1 and R_4 separate 4
3. Forewing with CuA_1 arising from near M_3. Central tip of saccus in male genitalia nearly pointed ..... *taeniata* Snellen
– Forewing with CuA_1 arising from nearly middle between M_3 and CuA_1. Central tip of saccus in male genitalia smoothly rounded ..... *yoshinensis* (Wileman & West)
4. Antenna with two antennal rami in a segment 5
– Antenna with four antennal rami in a segment 7
5. Hindwing with stalk of Rs and M_1 diverging at proximal 1/4. Aedeagus with three cornuti in male genitalia ..... *cristatula* (Hübner)
– Hindwing with stalk of Rs and M_1 diverging at near middle. Aedeagus with a cornutus in male genitalia 6
6. Forewing with R_1 and R_4 nearly connate. Central tip of saccus in male genitalia sharply pointed ..... *japonibia* (Strand)
– Forewing with R_1 and R_4 widely separated. Central tip of saccus in male genitalia nipple shaped ..... *aerugula* Hübner
7. Hindwing with M_2 arising from nearly middle between M_2 and CuA_1 8
– Hindwing with M_2 arising from near CuA_1 ..... *innocua* Butler
8. Hindwing with stalk of Rs and M_1 diverging at near middle 9
– Hindwing with stalk of Rs and M_1 diverging at proximal 1/4 ..... *nami* (Inoue)
9. Forewing with R_1 and R_4 arising short distance and become more distance toward outermargin 10
– Forewing with R_1 and R_4 arising moderate distance and run parallel toward outer margin ..... *okanoi* (Inoue)

10. Forewing elongate, corpus bursae of female genitalia with signum 11
– Forewing strongly elongate, corpus bursae of female genitalia with no signum ..... *longicosta* sp. nov
11. Corpus bursae of female genitalia with a pair of thorn-like signa ..... *confusalis* (Herrich-Schäffer)
– Corpus bursae of female genitalia with a half moon-shaped signum ..... *ebatoi* (Inoue)

***Nola cristatula* (Hübner, 1793)** 각시혹나방 (新稱)

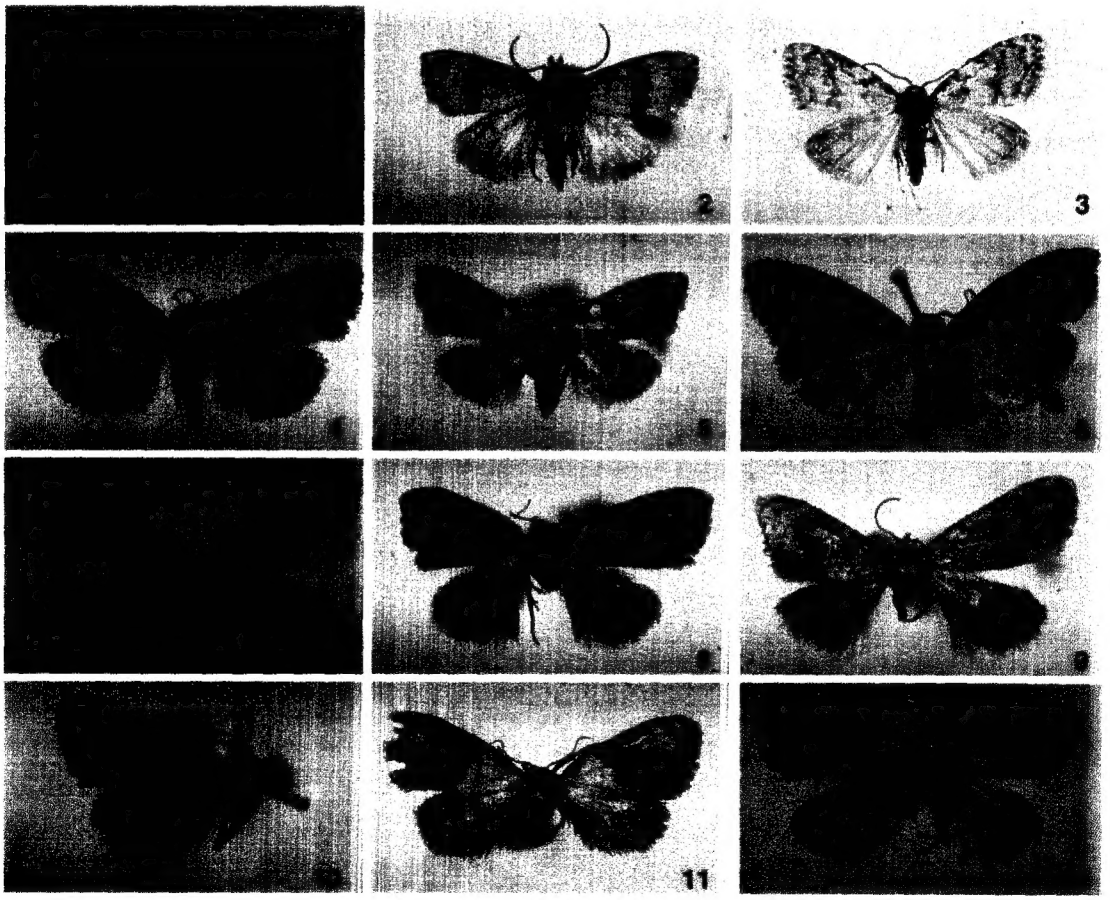
(Figs 1, 13, 25, 34)

Phalaena cristatula Hübner, 1793, Samml. auserlesener Vögel Schmett.: Pl. 34. TL (= Type locality): Europe.

Nola minutalis Leech, 1888, Proc. zool. Soc. Lond.: 608; Leech, 1898: 208. TL: Japan.

Celama cristatulalis: Hampson, 1900: 9.

Nola cristatula: Staudinger & Rebel, 1901: 360; Inoue, 1982, 1: 660, 2: pls. 154, 349, 352.



Figs 1-12. Adults: 1, *Nola cristatula* (Hübner); 2, *Nola taeniata* Snellen; 3, *Nola aerugula* (Hübner); 4, *Nola yoshinensis* (Wileman & West); 5, *Nola japonibia* (Strand); 6, *Nola confusalis* (Herrich-Schäffer); 7, *Nola longicosta* sp. nov.; 8, *Nola nami* (Inoue); 9, *Nola ebatoi* (Inoue); 10. *Nola innocua* Butler; 11, *Nola okanoi* (Inoue); 12, *Nola trilinea* Marumo.

Celama cristatula: Seitz, 1912: 48; Draudt, 1934: 63.
Celama cristatula minutalis: Inoue, 1958: 219; Inoue, 1961: 651.

Male genitalia (Fig. 25). Valva weakly sclerotized; distal half of costal part broadened, ventral part gradually tapering with a minute spine near apex. Aedeagus short with three cornuti; two of them slender, spine-like, 1/5 length of aedeagus, last one short, strongly curved.

Female genitalia (Fig. 34). Ductus bursae slender, 1.5 times of corpus bursae in length. Corpus bursae with a large hat-like signum.

Materials examined. [GG] Gwangleung, 1♀, 31 V 1986 (U Park); Suweon, 1♂, 2 VII 1986 (KT Park); 1♂, 11 IX 1982 (KT Park); Mt. Suri-san, 1♂, 2 VIII 1986 (SH Oh); Yeoju, 1♀, 20 VIII 1990 (SW Cho). [GW] Whacheon, 1♀, 2 VII 1985 (KT Park); Chuncheon, 1♂, 9 V 1989 (BK Byun); Hongcheon, 1♂, 15 VIII 1989 (SH Oh); Mt. Chiak-san, 1♀, 30 V 1974 (KT Park). [CB] Suanbo, 1♂, 1 VII 1990 (SH Oh). [JB] Muju, 1♀, 13 VII 1975 (KT Park). [JN] Mt. Mudeung-san, 2♂, 1♀, 28 VI 1990 (SH Oh). [GB] Andong, 1♀, 4 VII 1988 (SH Oh). [JJ] Topyeong, 1♀, 6 IX 1989 (SH Oh). Gen. prep. no.: CIS-2001, 2002, 2003, 2004, 2005, 2006, 2007.

Distribution. Korea (new record, Central, South, Jeju), Japan (Honshu, Shikoku, Kyushu), Europe.

Remarks. Adults appear from May to September.

***Nola taeniata* Snellen, 1874** 흰혹나방

(Figs 2, 14, 26, 37)

Nola taeniata Snellen, 1874, Tijdschr. Ent. 17:65; Inoue, 1982, 1: 660, 2: pls. 154, 349, 353. TL: Celebes, Indonesia.
Nola candida Butler, 1879, Illust. typical Specimens Lepid. Het. colln. Br. Mus.: 9; Leech, 1888: 607; Leech, 1898: 209. TL: Yokohama, Japan.
Celama candida: Hampson, 1900: 18; Seitz, 1912: 48.
Celama taeniata: Hampson, 1900: 17.

Male genitalia (Fig. 26). Valva with ventral part strongly sclerotized; apex sharply pointed. Aedeagus short, slightly bent near middle, with a niddle-like cornutus.

Female genitalia (Fig. 37). Ductus bursae broad, 2/3 times of corpus bursae in length. Corpus bursae spherical with a irregular quadrate signum.

Materials examined. [Seoul] 1♂, 4 IX 1989 (KJ Won); [GG] Gwangleung, 1♂, 10 VII 1982 (KT Park), 2♂. 27 VI 1990 (SH Oh), 1♂, 10 VII 1990 (SH Oh); Yeoju, 1♀, 20 VIII 1990 (SW Cho); Mt. Goryeong-san, 1♂, 5 VII 1990 (SH Oh); Mt. Dodram-san, 1♀, 19 V 1990 (KT Park); Suweon, 5♂, 9-20 V 1976 (KT Park), 2♂, 14 VI 1989 (SH Oh); 1♂, 5♀, 8-25 VIII 1976 (KT Park); 2♂, 2♀, 9-13 IX 1982 (SB Ahn); Incheon, 1♂, 10 VIII 1985 (SH Oh); [GW] Dunnae, 1♂, 15 V 1990 (SH Oh); 1♂, 7 VII 1990 (SH Oh); Sogumgang, 1♀, 7 VII 1988 (KT Park). [JN] Mt. Mudeung-san, 1♂, 28 VI 1990 (SH Oh). [GB] Sangju, 1♂, 9 V 1988 (SB Ahn). [JJ] Mt. Hanra-san, 1♂. 6 IX 1989 (SH Oh). Gen. prep. no.: CIS-2008, 2009, 2010, 2011.

Host plants. *Oryza sativa* (Gramineae), *Gossypium indicum* (Mavaceae), and *Morus alba* (Moraceae)

in China (Fang, 1983).

Distribution. Korea (Central, South, Jeju), Japan (Honshu, Shikoku, Kyushu, Tsushima, Okinawa), China, Malaysia, Sri-Lanka, India, Myanmar, Australia.

Remarks. The species was cited with the distribution in Korea by Seitz (1912). Yoon & Nam (1982) reported it from Donghae, and Kim *et al*. (1982) cited the previous record. It is a common species in Korea.

***Nola aerugula* (Hübner, 1793)** 회색혹나방

(Figs 3, 15, 27, 35)

Phalaena aerugula Hübner, 1793, Samml. auserlesener Vögel Schmett.: 11, pl. 61. TL: Europe.

Pyralis centonalis Hübner, 1796, Samml. eur. Schmett., Pyr. fig. 15. TL: Europe.

Glaphyra atomosa Bremer, 1816, Bull. Acad. Imp. Sci. St. Pétersb. 3: 491. TL: Ussuri, Russian Far East (RFE).

Celama centonalis: Hampson, 1900: 22; Seitz, 1912: 47. TL: Europe.

Nola candidalis Staudinger, 1892, Rom. Mém. VI: 258. TL: Amur, RFE.

Nola centonalis: Leech, 1888: 67.

Celama aerugula: Fang, 1983: 191.

Celama aerugula atomosa: Inoue, 1961: 652.

Nola aerugula: Inoue, 1982, 1: 661, 2: pls. 154, 349, 352.

Male genitalia (Fig. 27). Valva with costal part expanded distally. Aedeagus short, with a pad-like cornutus, about 1/3 length of aedeagus.

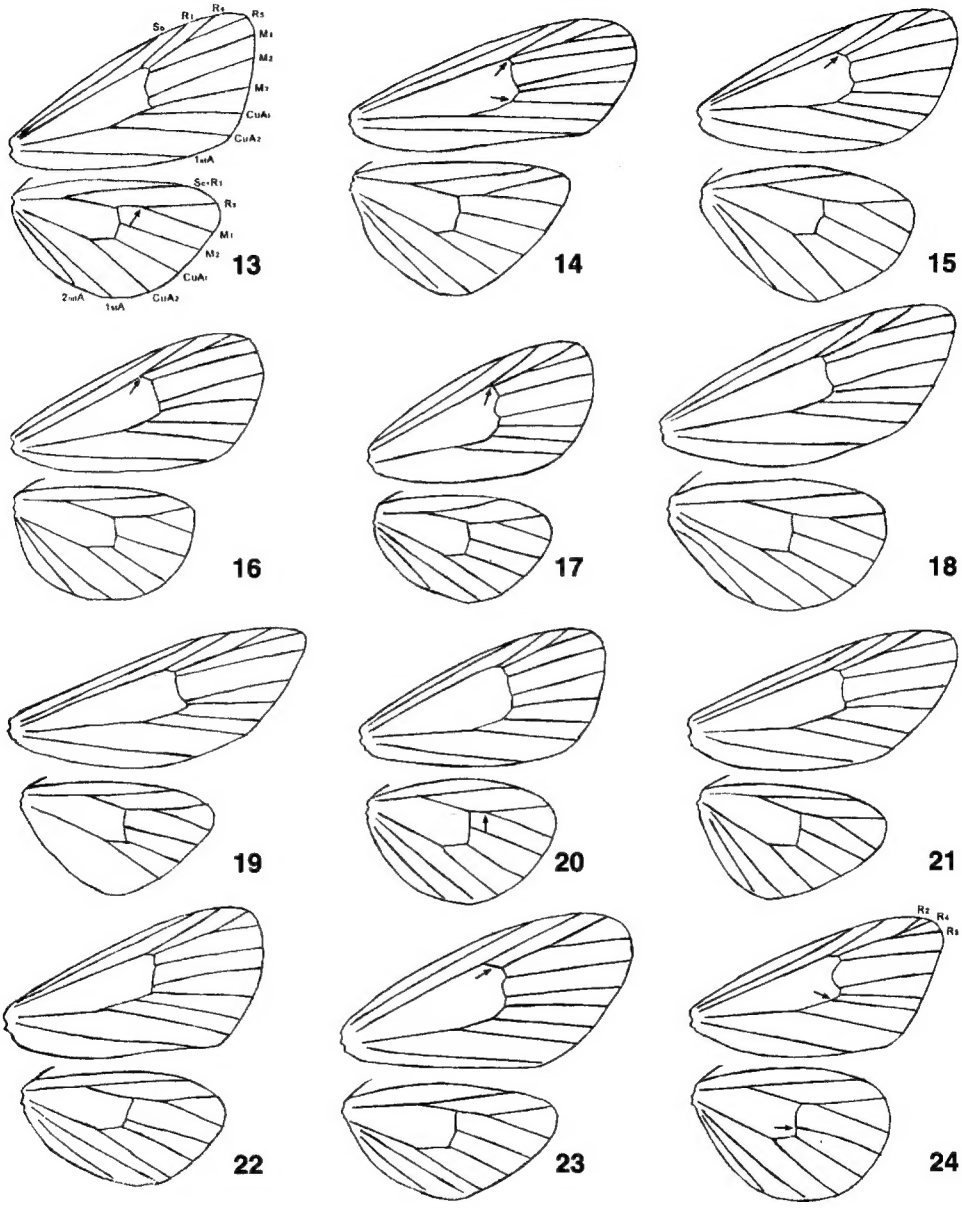
Female genitalia (Fig. 35). Ductus bursae broad, nearly same length of corpus bursae, attached area of corpus bursae sclerotized. Corpus bursae elongate, with a pair of signa; one scleritized and somewhat round, the other irregulary oval and scobinate.

Materials examined. [GG] Gwangleung, 1♂, 1♀, 19 VI 1972 (SM Lee), 1♀, 20 VI 1982 (KJ Won); Suweon, 2♂, 6 VII 1976 (KT Park); 1♂, 12 VII 1974 (KT Park); 1♂, 29 VI 1980 (KT Park), 1♂, 1♀, 20 VIII 1980 (SH Oh); Anyang, 1♀, 21 VI 1984 (SH Oh); Mt. Yumyeong-san, 1♂, 17 VI 1990 (SH Oh); Mt. Suri-san, 1♂, 2 VIII 1986 (SH Oh). [GW] Chuncheon, 1♂, 27 VI 1989 (BK Byun), 1♂, 7 VII 1987 (HY Choi); Hongcheon, 3♂, 3♀, 15-24 VI 1989; 2♂, 2♀, 5 VIII 1989 (SH Oh); 1♂, 5 IX 1986 (U Park); Sogumgang, 1♂, 6 VII 1988 (KT Park); Mt. Odae-san, 2♂, 12 IX 1976 (KT Park); Yangyang, 1♂, 19 VIII 1988 (KT Park); Mt. Seolak-san, 1♂, 24 VII 1973 (SM Lee); 1♂, 25 VI 1989 (SH Oh); Hwoengseong. 1♂, 29 VI 1984 (SH Oh). [CN] Onyang, 3♂, 26 VI 1990 (SH Oh). [CB] Mt. Weolak-san, 1♂, 21 V 1985 (SH Oh). [JN] Mt. Mudeung-san, 2♂, 28 VI 1990 (SH Oh). Gen. prep. no.: CIS-2012, 2013, 2014, 2015.

Host plants. *Trifolium repens* (Leguminosae) and *Betula platyphylla* (Betulaceae) were known from Europe (Barrett, 1895).

Distribution. Korea (Central, South), Japan (Hokkaido, Honshu), Russia (S.E. Siberia, Saghalien), China (North), Europe.

Remarks. Leech (1888) reported this species for the first time from Korea. It is a Palaearctic species



Figs 13-24. Venations: 13, *Nola cristatula* (Hübner); 14, *Nola taeniata* Snellen; 15, *Nola aerugula* (Hübner); 16, *Nola yoshinensis* (Wileman & West); 17, *Nola japonibia* (Strand); 18, *Nola confusalis* (Herrich-Schäffer); 19, *Nola longicosta* sp. nov.; 20, *Nola nami* (Inoue); 21, *Nola ebatoi* (Inoue); 22, *Nola innocua* Butle; 23, *Nola okanoi* (Inoue); 24, *Nola trilinea* Marumo.

and Mt. Mudung-san in Korea is probably the southernmost of its distribution. It is known that European species is the nominate subspecies and Far East Asian subspecies is ssp. *atmosa* Bremer.

***Nola yoshinensis* (Wileman & West, 1929)** 어리두줄흑나방 (新稱)

(Figs 4, 16, 28, 36)

Celama yoshienensis Wileman & West, 1929, Ann. Mag. nat. Hist. (10) 3: 187; Inoue, 1961: 652. TL: Japan.

Nola yoshinensis: Inoue, 1982, 1: 663, 2: pls 154, 349, 352.

Male genitalia (Fig. 28). Valva with costal part ampler toward apex; ventral part slender. Central tip of saccus smoothly rounded. Aedeagus short, somewhat broad; cornutus broad and about 1/4 of aedeagus in length.

Female genitalia (Fig. 36). Ductus bursae broad and short; half of corpus bursae in length, posterior half sclerotized, anterior half membranous and strongly ribbed. Corpus bursae elongated, with a hat-like signum.

Materials examined. [GG] Gwangleung, 1♀, 8 VI 1977 (KT Park); 1♂, 1♀, 10 VII 1982 (KJ Won); 1♀, 4 VIII 1988 (SH Oh); Suweon, 2♀, 23 VII 1974; 1♀, 23 VIII 1974 (KT Park); 2♂, 16 IX 1976 (KT Park); 1♂, 13 VII 1975 (KT Park); 5♂, 14 IX 1982 (SB Ahn); 1♂, 28 V 1975 (SH Oh); Mt. Cheonggye-san, 1♂, 4 VI 1988 (SB Ahn); Mt. Cheonma-san, 1♀, 28 V 1976 (SM Lee); Mt. Yumyeong-san, 1♂, 17 VI 1990; 1♀, 2 VIII 1990 (SH Oh). [Seoul] 1♂, 5 IX 1982; 1♀, 5 VI 1985 (KJ Won). [GW] Chuncheon, 1♀, 18 VII 1989 (BK Byun); 1♂, 30 VIII 1990 (BK Byun); Mt. Myeongji-san, 1♂, 28 VII 1992 (BK Byun); Hongcheon, 1♂, 5 IX 1986; 1♂, 2♀♀, 10 VI 1988 (SH Oh); Pyeongchang, 1♀, 24 VI 1988 (SH Oh). [CB] Mt. Weolak-san, 1♂, 31 V 1986 (YI Lee). [JB] Mt. Daedun-san, 2♂, 3♀, 22 V 1992 (KT Park). [JN] Mt. Jiri-san, 1♀, 14 VII 1976 (KT Park); Mt. Baekun-san, 1♂, 21 VIII 1991 (SB Ahn). Gen. prep. no.: CIS-2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024.

Distribution. Korea (new record, Central, South), Japan (Honshu, Shikoku, Kyushu).

Remarks. Adults appear from May to September, and it is a common species in Korea.

***Nola japonibia* (Strand, 1920)** 꼬마흑나방 (新稱)

(Figs 5, 17, 29, 38)

Celama innocua var. *japonibia* Strand, 1920, Lep. Cat. 24: 454. TL: Japan

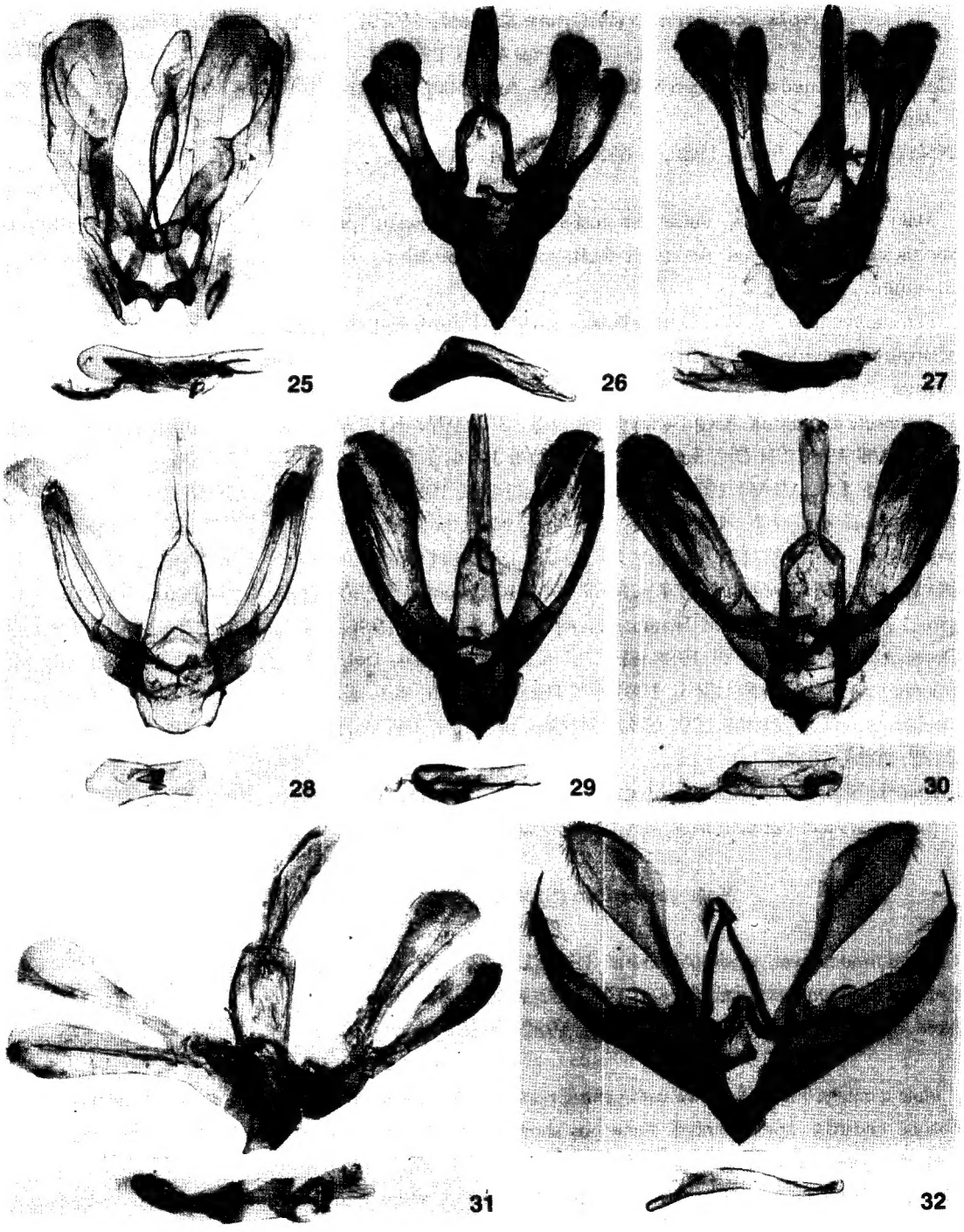
Celama innocua japonibia: Draudt, 1934: 63; Inoue, 1961: 651.

Nola japonibia: Inoue, 1976: 163; Inoue, 1982, 1: 661, 2: pls 154, 349, 353.

Male genitalia (Fig. 29). Valva with ventral part entirely sclerotized; apex with a spine; harpe thorn-like, oblique inwardly, apex pointed. Aedeagus short, gradually narrowed; cornutus slender rod-like, about 3/4 of aedeagus in length.

Female genitalia (Fig. 38). Apophysis anterioris about same length of apophysis posterioris. Ductus bursae long, twice of corpus bursae; from the ostium, basal 1/4 of ductus bursae broad and weakly sclerotized. Corpus bursae spherical with a double signa; one with blunted short process; the other small, serrated with no process.

Materials examined. [GG] Gwangleung, 1♀, 31 V 1986 (SH Oh), 1♂, 3 VI 1988 (KT Park), 2♀, 4



Figs 25-32. Male genitalia: 25, *Nola cristatula* (Hübner); 26, *Nola taeniata* Snellen; 27, *Nola aerugula* (Hübner); 28, *Nola yoshinensis* (Wileman & West); 29, *Nola japonibia* (Strand); 30, *Nola confusalis* (Herrich-Schäffer); 31, *Nola longicosta* sp. nov.; 32, *Nola trilinea* Marumo.

VIII 1988 (HY Choi); Mt. Suri-san, 1♀, 2 VIII 1986 (SH Oh); Suweon, 1♂, 13 VII 1975 (KT Park), 1♂, 11 IX 1982 (SB Ahn); Yeoju, 4♂, 2♀, 20 VIII 1990 (SW Cho); Mt. Dodram-san, 1♂, 19 V 1990 (KT Park); Mt. Gwanak-san, 1♀, 4 VIII 1988 (SH Oh). [GW] Chuncheon, 1♀, 16 V 1989 (KT Park), 1♂, 30 VII 1986 (KT Park), 1♀, 7 VI 1990 (BK Byun), 1♂, 22 VII 1991 (SH Oh), Jeongseon, 1♂, 30 VII 1991 (KT Park). [CB] Mt. Weolak-san, 1♂, 23 VI 1985 (KT Park). Gen. prep. no.: CIS-2025, 2026, 2027, 2028, 2029, 2030, 2031.

Distribution. Korea (new record, Central, South), Japan (Hokkaido, Honshu, Shikoku, Kyushu).

***Nola confusalis* (Herrich-Schäffer, 1847)** 선비흑나방 (新稱)

(Figs 6, 18, 30, 39)

Roeselia confusalis Herrich-Schäffer, 1847, Syst. Bearb. Schmett. Eur. 2: 164. TL: not given

Nola confusalis: Leech, 1888: 608; Inoue, 1982, 1: 662, 2: pls 154, 349, 352.

Celama confusalis: Hampson, 1900: 24; Seitz, 1912: 47; Draudt, 1934: 63; Inoue, 1970: 3; Fang, 1983: 191.

Male genitalia (Fig. 30). Sacculus sclerotized along ventral part of valva; apex with a spine; harpe thorn-like; Saccus broad with a nipple-like process.

Female genitalia (Fig. 39). Ductus bursae slender, about 2/3 of corpus bursae in length, with a minutely serrated ribbon-like sclerite near junction of cervix bursae. Corpus bursae ovate with a pair of thorn-like signa.

Materials examined. [GG] Suweon, 1♂, 23 V 1989 (SB Ahn). [GW] Chuncheon, 1♂, 24 V 1989 (BK Byun); Mt. Odae-san, 2♂, 23 V 1989, 1♂, 26 VI 1989 (KT Park); Sogumgang, 1♀, 24 V 1988 (HY Choi). [GB] Seongju, 1♂, 1♀, 24 V 1989 (SB Ahn). [JJ] Yeongsil, 1♀, 30 IV 1994 (BK Byun) <Japan>: Shibacha, Kushiro, 1♂, 7 VI 1979 (K Ijima); Kirizumi, Kumma, 1♀, 3 VI 1989 (HInoue). Gen. prep. no.: CIS-2032, 2033, 2034, 2035, 2036, 2037, 2038.

Distribution. Korea (Central, South, Jeju), Japan (Hokkaido, Honshu), Russia (S. E. Siberia), China, Europe.

Host plant. Family Fagaceae was known from Europe (Barrett, 1895).

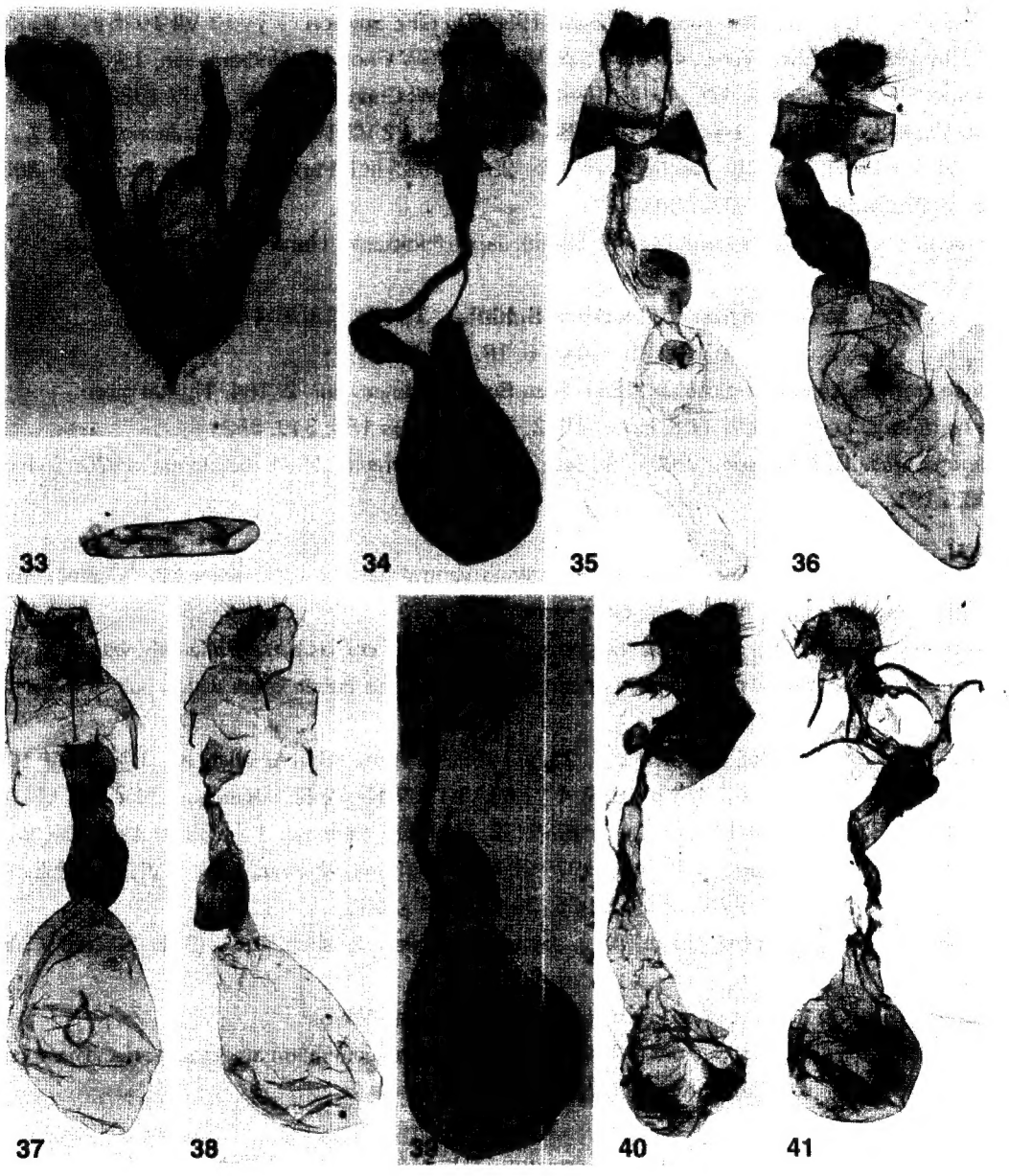
Remarks. Moths appear from April to May, probably with one generation a year in Korea. The species was first cited to be distributed in Korea by Inoue (1982).

***Nola longicosta* sp. nov.** 긴날개선비흑나방 (新稱)

(Figs 7, 19, 31, 40)

Description. Wingspan 20-21 mm. Head creamy white dorsaly; labial palpus white, mixed with dark brown scales. Forewing elongate; ground color light brown; R_2 and R_3 absent, R_4 and R_5 stalked near middle. Hindwing almost white with distinct marginal line; discal spot faint; M_3 absent, M_2 arising from middle of discal cell. Closely related and similar to *N. confusalis* but distinguished from it by follows: forewing brownish, strongly elongate, with more acute apex and paler hindwing.

Male genitalia (Fig. 31). Costal and ventral half of valva similar in shape, gradually become ampler; a



Figs 33. Male genitalia, **34-41.** Female genitalia: 33, *Nola ebatoi* (Inoue); 34, *Nola cristatula* (Hübner); 35, *Nola aerugula* (Hübner); 36, *Nola yoshinensis* (Wileman & West); 37, *Nola taeniata* Snellen; 38, *Nola japonibia* (Strand); 39, *Nola confusalis* (Herrich-Schäffer); 40, *Nola longicosta* sp. nov.; 41, *Nola nami* (Inoue).

spine-like process at apex absent while developed in the *confusalis*; harpe thorn-like, tapered uniformly, while in *cosfusalis* apical part suddenly narrowed, hook-shaped; saccus broader with pointed apex.

Female genitalia (Fig. 40). Apophysis anterioris about as long as apophysis posterioris. Ductus bursae

narrowed near antrum, gradually broadened towards corpus bursae; signum absent while with a pair of thorn-like signa in *confusalis*.

Materials examined. Holotype: ♂, Gwangleung, GG, Korea, 25 IV 1986 (KJ Won). Gen. prep. no. CIS-2039. Paratypes: 1♀, same locality as holotype, 21 IV 1985 (KJ Won). Gen. prep. no. CIS-2040, 1♀, same locality as holotype, 25 IV 1986 (KJ Won). Gen. prep. no. CIS-2041, 1♀, Yangyang, GW, 15 V 1987 (KT Park). Gen. prep. no. CIS-2042.

Distribution. Korea (Central).

Etymology. The specific name is derived from the characteristic of elongated forewing.

***Nola nami* (Inoue, 1956)** 연갈색흑나방 (新稱)

(Figs 8, 20, 41)

Celama nami Inoue, 1956, Kontyû 24: 158; Inoue, 1970: 1. TL: Fukushima, Japan
Celama confusalis nami: Inoue, 1961: 652.
Nola nami: Inoue, 1982, 1: 662, 2: pls 154, 349, 352; Inoue, 1991: 65.

Female genitalia (Fig. 41). Antrum about 2/5 length of ductus bursae, heavily sclerotized, rectanglar; without any sclerites in ductus bursae near junction of cervix bursae; signum single very large.

Materials examined. [GW] Mt. Odae-san, 1♀, 26 VI 1980 (KT Park) <Japan>: Fukashiro. Otsuki, Yamanashi, 1♂, 14 V 1988 (K Yazaki); Oiwake, Karuizawa, Nagano, 24 VIII 1989 (Y Kishida). Gen. prep. no.: CIS-2043, 2044, 2045.

Distribution. Korea (new record, Central), Japan (Hokkaido, Honshu, Shikoku, Kyushu).

Host plants. *Euptelea polyandra* (Trochodendraceae), *Enkianthus perlatus* (Ericaceae), and *Clethra barbinervis* (Clethraceae) were known from Japan (Inoue, 1982).

Remarks. Korean materials slightly differ from Japanese ones with somewhat broad forewings and ground color of both wings brownish white. A further study is needed with more fresh specimens.

***Nola ebatoi* (Inoue, 1970)** 작은연갈색흑나방 (新稱)

(Figs 9, 21, 33, 42)

Celama ebatoi Inoue, 1970, Bull. Jap. Ent. Acad. 6: 2. TL: Tokyo, Japan
Nola ebatoi: Inoue, 1982, 1: 662, 2: pls 154, 349, 352; Inoue, 1991: 65.

Male genitalia (Fig. 33). Both parts of valva slender, gradually broadened; half of ventral part sclerotized; harpe horn-like, apex blunt. Aedeagus short with a strongly curved cornutus.

Female genitalia (Fig. 42). Antrum about 1/4 of ductus bursae in length, heavily sclerotized, quadrate; from the antrum, basal 2/5 of ductus bursae narrow, rest broad, ribbon-like sclerite absent; cervix bursae slender; ductus seminalis arising from junction of corpus bursae; corpus bursae spherical, with a half moon-shaped signum.

Materials examined. [GG] Gwangleung, 1♂, 7 VIII 1982 (KJ Won). [GW] Chuncheon, 1♂, 21 VI 1985 (KT Park); 1♀, 21 VI 1985 (KT Park); Jeongseon, 1♀, 30 VII 1991 (SH Oh); Mt. Seolak-san, 1♂, 26 V 1983 (SS Kim); Yangyang, 1♂, 30 V 1987 (KT Park). [JB] Muju, 1♂, 13 VIII 1975 (KT Park).

<Japan>: Bush, Iruma, Saitama, 1♂, 4 VI 1973 (H Inoue). Gen. prep. no.: CIS-2046, 2047, 2048, 2049, 2050, 2051, 2052.

Distribution. Korea (new record, Central), Japan (Hokkaido, Honshu).

***Nola innocua* Butler, 1880** 등근어깨무늬흑나방 (新稱)

(Figs 10, 22, 43)

Nola innocua Butler, 1880, Proc. zool. Soc. Lond. 1880: 671; Inoue, 1976: 164; Inoue, 1982, 1: 661, 2: pls 154, 137, 352. TL: Taiwan

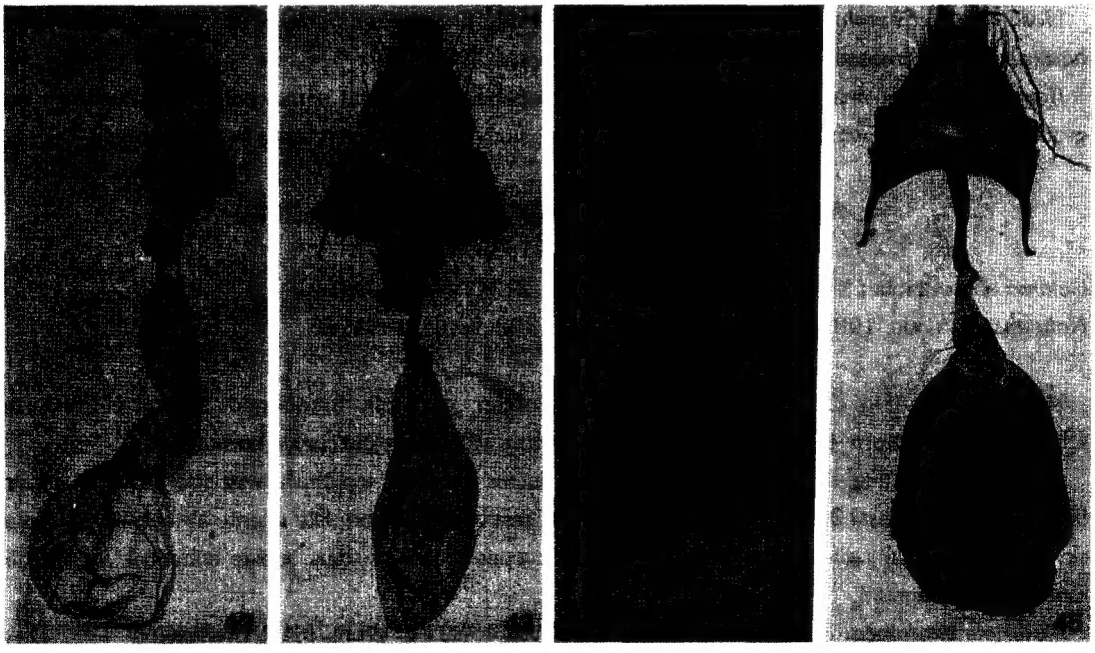
Celama innocua: Hampson, 1900: 21; Seitz, 1912: 48; Draudt, 1934: 63.

Female genitalia (Fig. 43). Apophysis posterioris about twice of apophysis anterioris in length. Ductus bursae short, about 1/2 of corpus bursae in length; antrum broad and sclerotized, about 1/2 of ductus bursae in length; corpus bursae slender, with a large hat-like signum.

Materials examined. [GB] Andong, 1♀, 3. VI. 1970 (S Ohkusa). Gen. prep. no.: CIS-2053.

Distribution. Korea (South), Japan (Honshu, Shikoku, Kyushu, Tsushima, Okinawa), Taiwan.

Remarks. This species is similar to *N. japonibia*, but differs from the later as follows: Forewing broader and ground color of both wings greyish, costal patches blackish; postemedian line distinct, from costa to vein M_3, somewhat straight, minutely dentated, then oblique inwardly. A single female was collected during the study and examined.



Figs 42-45. Female genitalia: 42, *Nola ebatoi* (Inoue); 43, *Nola innocua* Butler; 44, *Nola okanoi* (Inoue); 45, *Nola trilinea* Marumo.

***Nola okanoi* (Inoue, 1958)** 반백흑나방 (新稱)

(Figs 11, 23, 44)

Celema okanoi Inoue, 1958, Kontyû 26: 233; Inoue, 1961: 652. TL: Morioka, Japan

Nola okanoi: Inoue, 1982, 1: 663, 2: pls 154, 349, 352.

Female genitalia (Fig. 44). Apophysis anterioris about half of posterioris in length. Ostium broad. Antrum swollen like a ball, nearly twice of ductus bursae in length. Ductus bursae short, about 1/4 of corpus bursae in length. Corpus bursae ovate with a chestnut-like large signum.

Materials examined. [GW] Sogeumgang, 1♀, 6. VII 1988 (KT Park). <Japan>: Veda, Morioka, 1♂, 16 VII 1956 (H Inoue). Gen. prep. no.: CIS-2054, 2055.

Distribution. Korea (new record, Central), Japan (Honshu).

Remarks. In the hindwing, M_2 is arising nearer to CuA_1 than M_1, while other congeners from middle between M_1 and CuA_1.

***Nola trilinea* Marumo, 1923** 다갈색흑나방 (新稱)

(Figs 12, 24, 32, 45)

Nola trilinea Marumo, 1923, Jour. Coll. Agric. Imp. Uni. Tokyo 8: 137; Draudt, 1934: 61; Inoue, 1976: 165; Inoue, 1982, 1: 663, 2, pls 154, 350, 351. TL: Tanegashima, Japan

Male genitalia (Fig. 32). Uncus relatively small, slender; apex pointed. Costal part of valva strongly expanded toward apex; ventral half gradually tapering with a long needle-like spine; harpe thorn-like curved outwardly. Aedeagus slender; cornutus absent.

Female genitalia (Fig. 45). Ductus bursae about 1/2 of corpus bursae in length, strongly sclerotized entirely; cervix bursae small. Corpus bursae elongate, with a double thorn-like signum.

Materials examined. [GG] Suweon, 1♂, 2 VII 1974, 1♀, 22 VIII 1974 (K.T. Park), 1♀, 7 VI 1983 (O.J. Im), 1♂, 21 VI 1985 (J.O. Lee). [GW] Yangyang, 1♂, 17 VI 1987 (K.T. Park); Chuncheon, 1♀, 21 VII 1992 (B.K. Byun). Gen. prep. no.: CIS-2056, 2057.

Distribution. Korea (Central), Japan (Honshu, Shikoku, Kyushu, Okinawa).

Remarks. This species is a heterogeneity from the other species of the genus: forewing with R_2 present; M_2 on hindwing arising from nearer to CuA_1 than to M_1; antenna in male bipectinate, while other species fasciculate; uncus developed in male genitalia. According to the wing venation, antenna, and male genitalia, it may be intermediate species between *Rhynchopalpus* and *Nola*. The species was first cited to be distributed in Korea by Inoue (1982).

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